CASANDRO WASH AT US 60
FCD GAGE ID# 7093

STATION DESCRIPTION

LOCATION - The gaging station is located on the south side of US 60 in Wickenburg, Arizona near the intersection of Lazy Fox Drive. The instrumentation is located on the upstream (south) side of the box culverts at US 60. Latitude N 33° 57' 43.4", Longitude W112° 45' 54.9". Located in the NE1/4 SW1/4 S10 T7N R5W in the Vulture Peak 7.5-minute quadrangle.

ESTABLISHMENT - The gage was installed on July 12, 1994.

DRAINAGE AREA - 0.61 mi^2. This is the east of two similarly sized tributary basins contributing to the Casandro Dam. The west tributary crossing however has a smaller, less efficient crossing of US 60.

GAGE - The gage is presently a pressure transducer located on the upstream side of the box culvert. The PT diaphragm is placed 0.5 feet below the culvert invert. The gage elevation is 0.73 feet gage height.

There is one staff gage at this location. It is located in the left culvert near the PT. It reads in gage height.

There are two crest stage gages at this site. One is on the right side of the downstream face of the culvert outlet. The second is located on the right side of the upstream inlet to the culverts. The pins of both CSGs are located at the approximate inlet and outlet invert elevations respectively.

Crest gage number one is taken as the CSG at the culvert inlet. It has pin elevation of 1.52 feet gage height, levels of March 8, 2000.

Crest gage number two is taken as the CSG at the culvert outlet. It has pin elevation of 0.34 feet gage height, levels of March 8, 2000.

ZERO GAGE HEIGHT - Zero gage height is defined as the concrete culvert floor at where the PT was previously located. The inlet invert of the culvert is 1.23 feet gage height, and the outlet invert of the culvert is -0.13 feet gage height.

HISTORY - No previous gaging at this site. Crest gages installed in 1997. Crest gages reinstalled December 7, 1999. Station and transducer moved on March 15, 2006. Station was relocated to the south side of US 60. It is believed that the transducer will provide

more accurate information about flows through the culvert. Datum references were kept the same as before the move.

REFERENCE MARKS –

RM1 is a chiseled 'X' on the top of the outlet headwall near the station standpipe. It was located at an arbitrary elevation of 100.0 ft in the initial cross section survey. This corresponds to an elevation of 7.61 feet gage height.

RP1 is a chiseled 'x' on the bottom of the box culvert near the outlet, in the right barrel near the pier. Established March 8, 2000. Elevation = -0.10 feet gage height, levels of March 8, 2000.

There are three slope area cross sections beginning approximately 50 feet downstream of the US60 bridge. Top of rebar elevations are given in gage height and in an arbitrary elevation for the slope area computations.

Cross section one is located approximately 50 feet downstream from the bridge. XS1LB is 1/2-inch rebar with elevation 0.86 feet gage height, or 25.49 feet for slope area computations. XS1RB is 1/2-inch rebar with elevation 0.72 feet gage height or 25.35 feet for slope area.

Cross section two is located approximately 50 feet downstream from cross section one. XS2LB is a 1/2-inch rebar with elevation 0.13 feet gage height or 24.76 feet for slope area. XS2RB is a 1/2-inch rebar with elevation 0.64 feet gage height or 25.27 feet for slope area.

Cross section three is located approximately 75 feet downstream from cross section two. XS3LB is a 1/2-inch rebar with elevation –0.48 feet gage height or 24.15 feet for slope area. XS3RB is a 1/2-inch rebar with elevation –0.55 feet gage height or 24.08 feet for slope area.

CHANNEL AND CONTROL - The control is two 86 foot long, 6 foot by 6-foot concrete box culverts. The inlet headwater condition to these culverts is an irregular "natural" drop inlet. The culvert inlet is the control. The inlet invert has an average elevation of 1.23 feet gage height.

The 0.0 feet gage height is taken as the elevation of the concrete floor of the culvert at the former PT location. The culvert outlet invert is at -0.13 ft gage height. In practicality the outlet invert is not exactly flat. Levels taken on 3-25-97 indicate that the invert varies about 0.02 ft across the opening of the two culverts. Based on the slope of the culvert, the concrete floor of the culvert at the PT is at 0.13 ft above the culvert outlet, i.e. 0.0 ft gage height. The staff gage 0.0 feet is the toe of the concrete box culvert at the staff gage which is located near the culvert outlet. Therefore the readings of the

staff gage may not correspond exactly with the gage height reported by the PT. However, given the draw down likely to occur immediately at the culvert outlet, the water surface may not be parallel to the culvert bottom slope near the outlet anyway.

RATING - The current rating is rating #4. It was developed from a culvert analysis using HY-8 and assuming the level sensor is at the upstream side of the culvert. The previous ratings apply when the level sensor was located near the outlet of the culvert.

ACCURACY - Fair

DISCHARGE MEASUREMENTS - Wading measurements could be made for lower discharges in the reach downstream of the culverts either at or near the local street dip crossing about 200 ft downstream of the gage.

POINT OF ZERO FLOW – The PZF is at 1.23 feet gage height. The bottom of the box culvert is considered the PZF.

FLOODS – Hurricane Nora remnants event on September 26, 1997 estimated at 178 cfs at 1.66 ft gage height based on high water marks in culvert. A verified flood of 147 cfs at 1.42 feet gage height occurred on August 29, 2000. A flood of 400 cfs, at an undetermined gage height, occurred on October 27, 2000.

REGULATION – None known

DIVERSIONS – None known

UPDATE - July 13, 2011
D E Gardner